

### **Amendments to the specification**

Please amend the specification as shown on the following marked up copy of the specification (pages 1-20 and the Abstract). The marked up copy is followed by a clean version, entry of which is requested to substitute for the specification as submitted. Note that these pages are separately numbered, and that this response resumes at page 3 with the Remarks section.

O.K. TO ENTER. 9/17/03.

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Specification  
for  
Methods and Apparatus for Implementing Internet Storefronts  
to Provide Integrated Functions

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### **Reference to Computer Program Listing Appendix**

A computer program listing appendix is stored on each of two duplicate compact disks which accompany this specification. Each disk contains computer program listings that illustrate implementations of the invention. The listings are recorded as ASCII text in an IBM PC/ MS  
5 DOS compatible file (478 kilobytes) having the filename "Appendix.txt" created June 23, 2003.

### **Field of the Invention**

This invention relates to methods and apparatus for enabling online merchants to sell complex products and services using an integrated mechanism for personalizing sales, managing  
10 content and advertising, and generating reports.

### **[Reference to Appendix and ]Copyright Statement**

[An appendix consisting of 299 pages accompanies and forms a part of this specification and contains Unix operating system script file listings and related data that illustrate a working  
15 illustrative embodiment of selected components of the invention. ] A portion of the disclosure of this patent document contains material that is subject to copyright protection. The copyright owner has no objection to the facsimile reproduction by anyone of the patent document or the patent disclosure, as it appears in the Patent and Trademark Office patent file or records, but otherwise reserves all copyright rights whatsoever.

### **Background of the Invention**

The online sales market and its underlying technologies are quickly maturing. With the rapid market maturation, what were once competitive advantages are becoming commonplace. For example, most online consumers now expect competitive pricing, shopping carts, advance  
25 search capabilities, online status checking, email notifications, and more. These trends set lofty goals for companies who must develop more compelling online experiences, determine more ways to drive sales, and enhance their competitive advantages. Whether the intent is to sell complex or custom products over the Internet, to conduct one-on-one marketing, to understand the

behavior and patterns of customers, to manage the ever-changing web store contents, or to enhance the ease of shopping, online companies must implement advanced techniques if they are to effectively compete.

The ever increasing level of competition necessitates the infusion of best practices from sales and marketing with compelling product offerings. Product Managers must be able to maintain and build complex selling models without the traditional reliance on skilled programmers. Moreover, e-commerce applications need to be rapidly deployed and must be easily maintainable, even for complex [ & ] and custom products.

In order to create distinct competitive advantages, companies must integrate sales and services. To improve customer attraction and retention, companies must develop and manage customer relationship via better sales and service integration and new technology. To insure that buyers to find what they need and place an order, the online selling process must [be] provide timely and [ & ] accurate enterprise data, be structured in a way that is easy to use for the buyer, allow the buyers to find what they need without undue effort and frustration, and suggest products and services that are in the best interests of the customer.

### **Summary of the Invention**

The present invention takes the form of a rapidly deployable, integrated online sales system which comprises a core storefront application that executes on a conventional web database server, guided buying and sales configuration capabilities for selling complex custom products and services, content management functions, a recommendation system for predicting the preferences of individual customers and making specific real-time recommendations during a shopping session, an advertising management system, a profiling system for customizing customer interactions based on the site visitor's demonstrated interests, and a reporting system that provides accurate and reliable analysis of user['] behavior to create the valuable reports.

As contemplated by the invention, the core storefront database server system, the advertising management engine, the recommendation engine, the content manager, and the analysis report generator take the form of separate modules that can be rapidly integrated and deployed using pre-written installation and configuration scripts. The various components of the  
5 desired system are preferably first assembled as a pre-integrated prototype system that can be rapidly recreated, thereby seamlessly integrating the core storefront component with the other functional units. As the pre-written scripts execute during the deployment process, the installer is prompted to provide data values which are used to modify the content of pre-written configuration template files to accommodate the special needs of each individual installation. This rapid  
10 deployment methodology ensures a repeatable solution that allows businesses to quickly build and deploy e-commerce sites complete with guided buying and configuration capabilities.

In accordance with another feature of the invention, a web-based user interface provides centralized system administration functions. The administration system provides password protected log-in so that only authorized persons can perform the supported administration  
15 functions which include content management, content workflow, user management, product management, the creation of advertising programs, and the design and invocation of analytical reporting functions.

These and other objects, features and advantages of the present invention may be better understood through a consideration of the following detailed description in which frequent  
20 reference is made to the accompanying drawings.

### **Brief Description of the Drawings**

Fig. 1 is a block diagram illustrating the relationship between the application modules that together form the integrated online sales system contemplated by the invention, and  
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Fig. 2 is a flow diagram illustrating the method used to rapidly deploy the integrated application to a target installation using pre-written operating system script files.

### Detailed Description

5           The preferred embodiment of the invention takes the form of a fully integrated online sales system which can be used by companies that sell simple to complex products and services and which employ personalization, content management, ad management, and report generation.

          The core of the system is provided by an online storefront seen at 101 in Fig. 1 which is preferably implement using iStore, a storefront application available from Oracle Corporation,  
10   Redwood Shores, CA, which employs the Oracle 8 relational database management system and Oracle application server. In addition, the storefront 101 preferably employs Oracle's Selling Point Internet Edition to add the guided buying and sales configuration capabilities needed to sell complex products and services.

          The storefront 101 is integrated with a content manager 103 such as the Vignette Story  
15   Server available from Vignette Corporation, Austin, TX. The storefront [103] 101 is further integrated with a recommendation engine 105 such NetPerceptions, available from Net Perceptions, Inc. of Eden Prairie, MN, an application which provides buying recommendations to site visitors based on a prediction of each visitor's preferences. NetPerceptions is integrated with iStore by means of a pre-written Java interface called iMarketing provided by Oracle.

20           The system further integrates advertising management functions as indicated at 107 which are preferably performed by AdManager that delivers targeted advertising and by ProfileServer, which provides customized advertising presentations based on a visitors demonstrated interests while preserving visitor anonymity. Both AdManager and ProfileServer are available from Engage, Inc. of Raleigh, NC. Finally, [Log] log files 113 that record visitor activity are passed to  
25   an analysis and reporting module 109 which may be implemented by the NetAnalysis program from NetGenesis Corp. of Cambridge, MA. Each of these functional units is managed by the administration module 111. Module 111 provides a Web based menu interface to permit store employs to more easily manage the system.

The additional components integrated with the storefront applications enhance the capabilities of those applications by providing implicit and explicit personalization. Implicit personalization is achieved by observing the click-stream of the user and serving up relevant content on the store pages. Explicit personalization is achieved by asking the user to explicitly rate preferences and tastes, such as hobbies, age etc. and then using these to serve up relevant content.

In order to rapidly deploy such a comprehensive e-commerce solution, the present invention makes use of a pre-integrated prototype that is used to deploy all of the underlying components required to seamlessly integrate the various components of the system. The storefront applications 101, the recommendation engine 105, [,] the content manager [107] 103, the advertising manager [109] 107, the analysis and reporting module 109, and the administration menu system 111 are first individually loaded, configured and tested on a source computer to form an operational prototype. A like system is then be installed on one or more target machines by executing operating system script files which automatically load and initially configure the separately purchased application programs which make up the system. By combining these preferred components in a rapidly deployable prototype, an easily repeatable integrated solution is provided to businesses, enabling them to quickly build e-commerce sites complete with guided buying and configuration capabilities.

## **Storefront 101**

The core storefront 101 is preferably implemented by Oracle iStore 3.1, an application designed to enable businesses to sell non-configurable products and services over the Internet. Oracle iStore is a packaged e-commerce application that provides businesses with the necessary components to create Internet store sites for selling products and services in a secure and personalized environment. iStore supports multiple payment systems, allows the store operator to manage affiliate web links, and provides customers with coupons, discounts, and special promotions. iStore operates on the underlying technology platform of provided by the Oracle 8 relational database management system and Oracle Application Server. The iStore application can be readily integrated with back-office applications such as order entry, accounts receivable, and inventory, as well as with tax and shipping systems. Using iStore and its integrated back-office applications, customers may check inventory, place orders, and follow their orders through to delivery, all through the browser interface provided by the storefront 101.

The functionality of the storefront 101 can be further enhanced by adding the guided buying and sales configuration capabilities required to sell complex and custom products and services over the Internet. Oracle SellingPoint Internet Edition delivers these capabilities in the form of a customizable DHTML (Dynamic HyperText Markup Language) window that can be integrated into iStore. The Oracle SellingPoint adds guided buying, configuration and streamlined order submission to the core capabilities of iStore.

## **Content Manager 103**

The Vignette StoryServer application may be advantageously integrated with the storefront to provide content management functions: this application provides a content management,



personalization, decision support, and enterprise integration services to efficiently create shopping experiences that attract, engage, and retain customers. The content manager 103 simplifies the tasks performed by content authors, business users, and application developers.

## 5 **Recommendation Engine 105**

The recommendation engine 105 is a further application that is integrated with the storefront 105 to predict an individual shopper's preferences and make specific real-time buying recommendations during a shopping session. The recommendation engine determines each individual's preferences by observing that individual's behavior. It monitors such as click-through; 10 analyzes past behavior; and obtains responses to queries, such as asking a shopper to rate a number of relevant items. Pooling this information with knowledge gained from a community of other individuals, the engine can makes buying recommendations with high predictive accuracy. The prototype system preferably employs the Oracle iMarketing application to provide personalized recommendations to the users, such as displaying the best selling items in the store, 15 displaying popular items in each store section, displaying similar items bought by other users based on the items the current user has placed in his or her shopping cart.

## **Advertising Manager 107**

The advertising manager application which forms part of the prototype system enables the site to deliver targeted advertising. The advertising manager functions are preferably performed 20 by the AdManager and ProfileServer applications. AdManager [presents] automatically presents different advertising content in different sections of the store the user is browsing and works with ProfileServer which develops user profiles in real time so that the advertising which is presented

to the user is customized based on visitor's demonstrated interests while preserving the anonymity and privacy of the visitor.

### **Analysis and Reporting Module 109**

5        During each shopping session, the prototype captures the user's behavior in log files indicated at [111] 113 in Fig. 1. The log files 113 are then processed by the analysis and reporting module 109 to analyze the behavior of the site visitors and to provide useful management reports that can be used to provide the insight needed to improve the site's performance. The preferred prototype system integrates the functions provided by the Net Genesis  
10    NetAnalysis application to provide the desired analysis and reporting functions.

### **The Administration Menu System 111**

      The Administration Menu System 111 is a web based user interface that provides store employees with additional store management functionality to complement the basic management  
15    functionality provided by iStore, and to provide a unified mechanism for managing the other applications that are integrated with the storefront 101 to form the prototype systems.

      The administration menu is password protected so that only authorized users can access its functions. As used here, the term [Auser@] "user" refers to employees, supervisors and administrators for a particular store which employs the combined functionality provided by the  
20    prototyped system. The user initially accesses the administration store system by entering a specific URL which then prompts the user to enter the correct user name and password. If the user name and password is valid, the user will see an "Admin Menu" screen which displays links to the following options (1) manage content, (2) manage users, or (3) manage products. This page can

serve as the home [Page] page for all administrative functions on the store. It provides links to all the third party products as well as to the iStore Store Manager page.

Content management functions allow users to create new product reviews or articles. The content can be optionally associated with a URL, an image and one or more keywords. The  
5 keywords are used to classify content and personalize it to consumers based on their preferences. After the content is entered, the user can click on a "start" button which will save the data to the database and begin a workflow process to obtain necessary approvals, etc as described below. Content previously saved can be located by performing a search for the title or part of the title. Once located, the user can select the content specified by the title for viewing and editing.

10 When content is created or edited, it goes through a pre-defined workflow. The workflow steps are:

(1) a given content item is created, or existing content is edited.

(2) the content item is displayed on a store supervisor or administrator's tasklist which is divided into two portions: the top portion consists of a status list of all the  
15 content currently in the system and the bottom portion consists of a list of all content currently in workflow. The status list specifies the title of the content, its type, its status in the workflow process (ready to launch, live or expired, and potential actions that can be taken with respect to the item (launch content, change status to live or expired, etc.).

(3) The Store Supervisor/Administrator will click on "Edit" under the Edit column  
20 to review the content, make any necessary changes, and save the content.

(4) The Store Supervisor/Administrator will click on "Finish" under the Action column.

(5) The Store Administrator will click on "Launch" under the Action column.

(6) The Store Administrator may click on "Expire" under the Action column to remove the content from the live site. Note: Store products are not be subject to the workflow.

The [Amanage users@] "manage users" option on the main administrative menu  
5 permits the user to perform a search of a specific user. When the search results are displayed, the person managing users can the click on the user of interest to bring up the user description page. This page includes means for changing the password for the selected user.

The administrative menu system 111 provides product management tools. The  
10 Find Product function in the Administration Menu uses iStore's PowerSearch functionality to allow a Store Employee/Supervisor/Administrator find a product from the iStore tables. Results will be displayed in a window below the search fields and the user can double-click a product in order to edit its information. A Retrieve/Edit/Submit Product Information option reveals a screen that allows attributes of the product (retrieved from the  
15 step above ) to be changed by Store Employees, Supervisors, and Administrators. The attributes that can be changed include product name, label, description, image and manufacturer.

The manage accounts option on the administrative menu permits the user to search for particular accounts. Search results will be returned in a window and the Employee /  
20 Supervisor / Administrator can scroll through a list of matching accounts and double-click on the one they want to manage. Double clicking on an account opens a new window where the user will be able to enter a new password and must type the same password in a "Verify Password" field. If the passwords match it will be changed to the new password.

A link in the manage accounts screen takes the user to the AdManager application that  
25 allows the user to create AdCampaigns. Based on the criteria set in these ad campaigns, the AdManager will randomly serve these ads on the Store pages.

A further link takes the user to NetAnalysis reporting that allows the user to choose the types of reports that need to be generated and run them on the Store log files.

An additional link takes the Store Administrator/ Supervisor to the iStore Manager page provided by iStore for regular store management.

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### **Deploying the Prototype**

As noted earlier, the rapid deployment and initialization of a complete system which combines the functionality provided by the several integrated applications is achieved through the use of operating system script files which automatically install[s] the various packaged software products, as purchased from each software vendor.

Performance improvements may be made by utilizing a middle tier approach in which the database functions are handled on one server and one or more application servers are used for the various integrated applications. When this approach is used, a separate installation is performed for each application. Note that the Oracle Application Server and Vignette require the presence of the Apache Web server which means these combinations must be installed and kept together on whatever server is chosen. An installation could potentially have separate application servers for iStore and Vignette.

While there are a number of files that make up the set of scripts required to clone the prototype system on the source machine, the actual number of files which must be executed by the system administrator to install a new iPrototype Storefront consists only of one file: setup.sh.

The setup.sh script will prompt the user for all the necessary information to complete the installation using the cloning scripts. It is assumed that user has first performed the proper pre-

installation tasks and is familiar with the process before setup.sh is executed to call the proper scripts based on the answers provided to prompts.

Part IV of the Appendix contains a full list of all the Required Setup Information prompted by the setup.sh script. A first time install can usually use the default values that have been supplied. Part V of the Appendix contains an explanation of the supporting shell scripts and other files which comprise the cloning scripts and may be called by the setup.sh script, or by a script which was called by that script. It is not necessary to fully understand exactly how the cloning scripts work, but this is explained here for the interested user.

There are three main reasons for using the automated [A]cloning method of installation contemplated by the present invention, rather than using the standard installation procedure for each of the products which comprise the iPrototype Storefront: to perform the installation more rapidly, to improve consistency, and to automate the integration of the various application program which form the online sales system.

There is a significant time savings with this method as opposed to performing a standard install for each product. As described above, there are several different products which comprise the iPrototype Storefront. The total installation time for all of them using conventional procedures would typically be measured in hours or more likely days when they are separately installed. In contrast, installation time for all products using the cloning approach can be measured in minutes on most machines.

In addition to the time saving of cloning versus a standard install for each product, the installer also saves a more substantial amount of time integrating the products. The files used in the cloning process are based on a working iPrototype Storefront. All products have already been integrated and are working together. This is a substantial time savings measured in days or

more likely even in weeks. Finally, after running the cloning scripts, the installer is assured of an integrated system that is working together properly.

To execute an installation, the user need merely perform the following steps:

1. Ensure that all files in the target system have a good backup.
2. Completed the pre installation steps and know the answers to the questions you will be asked by the cloning scripts.
3. Log in to the target machine as root.
4. Execute setup.sh.
5. Answer the questions properly for the target's specific environment

As previously mentioned, the iPrototype Storefront Cloning scripts perform a complete install by essentially copying an existing Storefront that has been fully integrated and is fully functional onto [your] the user's machine. The initial iPrototype Storefront system integrating the various components is first installed and tested at a source installation. A copy of the necessary files for cloning this source installation is contained in the tar files from the installation media. The cloning scripts themselves are written and tested in at the source installation.

The task of [Acopying@] "copying" a storefront to another machine is by no means a simple copy of source prototype's files from one machine to another. There are numerous files which contain site specific information which will not function properly in a new environment.

The task of Acloning@ must therefore not only make a copy of all files, it must then reconfigure the appropriate files to contain the proper information for the new environment.

The deployment method is illustrated in Fig. 2 of the drawings. A main script file calls a series of application specific script files as illustrated at 201. Each subscript or set of subscripts performs the installation of a particular application module and issues prompts to the installer indicating needed configuration data values and option choices as illustrated at 205 and accepts the values provided in response as indicate at 207.

This reconfiguration is achieved using a set of template files, which are reconfigured for the new environment. This set of template files consist of every file for all applications which contain any site specific configuration information. The template file is almost but not quite an exact copy of the original file from which it is based. Any site specific information has been replaced with a predefined string. This predefined string can be identified and located by the cloning scripts, which will then replace this string with a new value which is the actual value specific for the new machine hosting the new storefront site. These new values are derived from questions answered by the installer when he or she runs the setup script and are posted as illustrated at 209 in Fig. 2. There are dozens of files which must be edited and reconfigured, which means there are dozens of questions posed in the initial setup phase. The content of each of these template files is listed in the Appendix.

In addition to templates files, there are SQL scripts which must run to update information in the database to complete the reconfiguration. Proper execution of the iPrototype cloning scripts should result in a working storefront. The storefront and supporting server applications should be working and should include the applications selected when executing the cloning scripts.

## **Conclusion**

It is to be understood that the methods and apparatus that have been described are merely illustrative applications of the principles of the present invention. Numerous modifications may be made by those skilled in the art without departing from the true spirit and scope of the invention.